Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Parts 2, 25, and 73 of the	)	
Commission's Rules to Implement Decisions	)	
from the World Radiocommunication Conference	)	ET Docket No. 04-139
(Geneva, 2003) (WRC-03) Concerning Frequency	)	
Bands Between 5900 kHz and 27.5 GHz and to	)	
Otherwise Update the Rules in this Frequency	)	
Range	)	

REPORT AND ORDER

Adopted: March 10, 2005 **Released: March 16, 2005**

By the Commission:

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I. INTRODUCTION

1. By this action, we are amending Parts 2, 25, 73, 90, and 97 of the Commission's Rules in order to implement allocation changes to the frequency range between 5900 kHz and 27.5 GHz in furtherance of decisions that were made at the World Radiocommunication Conference (Geneva, 2003) (WRC-03) and to otherwise update our Rules in this frequency range.[1] We take the following significant actions for non-Federal operations:[2] (1) realignment of the allocations near 7 MHz, which includes making the band 7100-7200 kHz immediately available to amateur operators in Regions 1 and 3;[3] (2) adoption of the Digital Radio Mondiale (DRM) standard and related actions,[4] which are anticipated to reinvigorate the HF broadcasting (HFBC) service (also known as "shortwave broadcasting");[5] and (3) raising the secondary Earth exploration satellite-service (EESS) allocation in the band 25.5-27 GHz to primary status, thereby meeting the needs of the commercial remote sensing industry for wider bandwidth operations. These and various other decisions adopted herein conform the Commission's Rules, to the extent practical, to the decisions that the international community made at WRC-03 and will collectively promote the advancement of new and expanded services and provide significant benefits to the American public.

II. EXECUTIVE SUMMARY

2. In this summary, we expand on our discussion of the most significant decisions that we are making in this Report and Order. First, we describe our actions that affect non-Federal operations. These actions are limited to the HF (3-30 MHz), UHF (300-3000 MHz), and SHF (3-30 GHz) frequency ranges.

In the HF Frequency Range:

- Authorize the use of double sideband (DSB), single sideband (SSB), and digital transmissions in the HF bands between 5900 kHz and 26100 kHz that are allocated to the broadcasting service and adopt the ITU system specifications for their use.[6]

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[1] *See* ITU *World Radiocommunication Conference Final Acts (Geneva, 2003)* (*WRC-2003 Final Acts*). All WRC-03 decisions have now become effective. *See WRC-03 Final Acts*, Article 59 at Nos. 59.7 and 59.8. However, because spectrum use within individual countries is governed by the respective sovereign entities, not all WRC-03 decisions have been implemented in all jurisdictions.

[2] For purposes of clarity and consistency, we are making a non-substantive change in our spectrum management terminology. Specifically, we are using the adjectives "Federal" and "non-Federal" instead of "Federal Government" and "non-Federal Government." See paras. 131-132, *infra.*

[3] For the allocation of frequencies, the ITU has divided the world into three Regions. The United States, its Caribbean insular areas, and some of its Pacific insular areas are in Region 2, which includes North and South America. Region 1 is primarily Africa, Europe, the former Soviet Union, and the Middle East. Region 3 is primarily the remainder of Asia, Australia, and New Zealand. Certain of the U.S. Pacific insular areas are in Region 3, the most important of which are American Samoa, Guam, and the Northern Marianna Islands. *See* 47 C.F.R. § 2.104(b) for the definitions and map of the three ITU Regions and § 2.105(a) for the lists of U.S. insular areas.

[4] See paras. 2 and 73, *infra.*

[5] The International Telecommunication Union (ITU) subdivides the radio spectrum (3 kHz to 3000 GHz) into nine frequency bands. The frequency range from 3 MHz to 30 MHz is HF (High Frequency). 47 C.F.R. § 2.101.

[6] DSB transmitters transmit the carrier frequency and both sidebands resulting from the modulation of the carrier by the modulating signal. Traditionally, DSB emissions have been used in HF broadcasting, and currently, the Commission's Rules authorize only DSB operations. In contrast, SSB transmission is the method of operation in which one sideband is transmitted and the other sideband is suppressed; the carrier wave may be either transmitted or suppressed. *See The New IEEE Standard Dictionary of Electrical and Electronics Terms*, Fifth Edition. Analog transmission (such as DSB and SSB) is the transmission of a continuously varying signal as opposed to digital

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- Adopt minimum operating power requirements for HFBC stations using SSB modulation (50 kilowatts (kW) peak envelope power (PEP)[7]) and digital modulation (10 kW mean power).[8]
- Require the use of the DRM[9] standard for digital transmissions in the HFBC bands.[10]
- Realign the allocations near 7 MHz to: (1) reallocate the band 7100-7200 kHz to the amateur service on a co-primary basis with the broadcasting service in the U.S. Pacific insular areas that are located in Region 3 until March 29, 2009, at which time this 100 kilohertz will be allocated exclusively to the amateur service; (2) reallocate the band 7350-7400 kHz to the broadcasting service on a co-primary basis with the fixed service until March 29, 2009, at which time this 50 kilohertz will be allocated exclusively for HFBC use; and (3) raise the allocation status of the mobile service in bands 6765-7000 kHz and 7400-8100 kHz to primary and slightly narrow the range of permitted services in those bands by prohibiting the aeronautical mobile route (R) service.[11]
- Authorize FCC-licensed amateur operators that are located within Region 1 or Region 3, but that are not located in another country's area of authority,[12] to operate in the band 7100-7200 kHz on a primary basis; however, until March 29, 2009, these amateur operations must not impose constraints on the HFBC service intended for use within Region 1 and Region 3.

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transmission, which is the transmission of a discretely varying signal. *See Telecommunications: Glossary of Telecommunication Terms*, Federal Standard 1037B.

[7] PEP is the average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the crest of the modulation envelope taken under normal operating conditions. 47 C.F.R. § 2.101.

[8] Mean power of a radio transmitter is defined as the average power supplied to the antenna transmission line during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions. 47 C.F.R. § 2.101. In the March 29, 2004 *Notice of Proposed Rulemaking* that initiated this proceeding (see para. 7, *infra*) we used the term "average power." However, ITU Radio Regulation No. 1.156 states that whenever power is referred to in the ITU *Radio Regulations* it must be expressed as either PEP, mean power, or carrier power. In staff discussions, the Broadcasting Board of Governors (BBG) stated that minimum digital HFBC power should be specified in terms of mean power. In order to remove confusion, we will use only the term mean power for digital HFBC transmissions in this Report and Order.

[9] The ITU system specifications for digital HFBC transmissions, which we are adopting in this Report and Order, provide only the basic radio frequency (RF) requirements. The DRM standard builds upon the ITU system specification for digital HFBC transmissions in order to provide manufacturers with all the basic information that they need to build both transmitters and receivers. See paras. 59-74, *infra*.

[10] The Commission has previously authorized the use of an In-Band On-Channel (IBOC) Digital Audio Broadcasting system in the AM (535-1705 kHz) and FM (88-108 MHz) broadcasting bands, which was developed by the iBiquity Digital Corporation (iBiquity). The action that we take today is limited to HF broadcasting and in no way disturbs the transition to iBiquity's technology, which is known as High Definition (HD) Radio, in the AM and FM bands. *See* www.ibiquity.com for more information on HD Radio.

[11] Specifically, we are allocating the bands 6765-7000 kHz and 7400-8100 kHz to the fixed and mobile except aeronautical mobile (R) services on a co-primary basis. The aeronautical mobile (R) service is defined as an aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes. 47 C.F.R. § 2.1. Thus, a mobile except aeronautical mobile (R) service allocation permits all mobile service uses except for this very specialized use.

[12] In addition to their authority to operate in the United States, its insular areas, its territorial waters, and its air space, FCC-licensed amateurs are authorized to transmit when a U.S.-registered vessel is in international waters or when a U.S.-registered aircraft is in international air space because the vessel or aircraft is considered to be part of the United States. FCC Rules apply until the vessel enters the territorial waters of another country or until the aircraft enters the air space of another country. See 47 C.F.R. §§ 97.301, 97.11 (for amateur station requirements aboard ships or in aircraft).

In the UHF Frequency Range:

- Conform the provisional Little LEO feeder link allocations (uplinks at 1390-1392 MHz and downlinks at 1430-1432 MHz) to the *WRC-03 Final Acts*.

In the SHF Frequency Range:

- Allocate the band 5000-5010 MHz to the radionavigation-satellite service (RNSS) and limit the use of this allocation to Earth-to-space transmissions (RNSS uplinks) on a primary basis for Federal and non-Federal use.[13]
- Allocate the band 5010-5030 MHz to the RNSS and limit the use of this allocation to space-to-Earth transmissions (RNSS downlinks) and to space-to-space transmissions on a primary basis for Federal and non-Federal use.
- Raise the secondary non-Federal EESS allocation in the band 25.5-27 GHz, which is limited to space-to-Earth transmissions (EESS downlinks), to primary status.[14]
- Replace the secondary non-Federal EESS allocation in the band 25.25-27.5 GHz, which is limited to space-to-space transmissions, with the broader inter-satellite service (ISS) allocation and limit its use to EESS and SRS applications and to transmissions of data originating from industrial and medical activities in space.[15]

3. Second, at the request of the National Telecommunications and Information Administration (NTIA), we are making a number of allocation changes to the Federal Table of Frequency Allocations (Federal Table),[16] three of which pertain to the space research service (SRS).[17] These allocation changes involve spectrum primarily used by Federal agencies and are anticipated to have limited impact on non-Federal licensees that are authorized to operate in the affected Federal bands. Specifically, we reflect changes to the Federal Table that: (1) allocate the band 432-438 MHz to the EESS (active) on a secondary basis for use mainly outside of the United States; (2) raise the secondary radiolocation service allocation in the band 2900-3100 MHz to primary status; (3) specify that the SRS (deep space) (Earth-to-space) allocation in the band 7145-7190 MHz has primary status; (4) raise the secondary SRS allocation

[13] The RNSS is a radiodetermination-satellite service used for the purpose of radionavigation. This service may also include feeder links necessary for its operation. Radiodetermination is the determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves. 47 C.F.R. § 2.1.

[14] The EESS is a radiocommunication service between earth stations and one or more space stations, which may include links between space stations, in which: (1) information relating to the characteristics of the Earth and its natural phenomena, including data relating to the state of the environment, is obtained from active sensors or passive sensors on Earth satellites; (2) similar information is collected from airborne or Earth-based platforms; (3) such information may be distributed to earth stations in the system concerned; and (4) platform interrogation may be included. This service may include feeder links necessary for its operation. 47 C.F.R. § 2.1.

[15] The ISS is a radiocommunication service providing links between artificial satellites. 47 C.F.R. § 2.1. Thus, non-Federal authority for space-to-space transmissions is expanded from just EESS applications to also include SRS applications and transmissions of data originating from industrial and medical activities in space. There is no change in allocation status. That is, the band 25.25-27 GHz was allocated to the EESS (space-to-space) on a secondary basis for non-Federal use and the ISS allocation also has secondary status.

[16] The Commission, which is an independent agency, administers non-Federal spectrum and NTIA, which is an operating unit of the Department of Commerce, administers Federal spectrum. 47 C.F.R. § 2.105(a). NTIA also approves the spectrum needs of new systems for use by Federal departments and agencies and maintains the Federal Table in its *Manual of Regulations & Procedures for Federal Radio Frequency Management* (*NTIA Manual*). The Federal Table is included in the Commission's Rules for informational purposes only. 47 C.F.R. § 2.105(d)(3).

[17] The SRS is a radiocommunication service in which spacecraft or other objects in space are used for scientific purposes. 47 C.F.R. § 2.1.

in the band 14.8-15.35 GHz to primary status; and (5) allocate the band 25.5-27 GHz to the SRS (space-to-Earth) on a primary basis.

III. BACKGROUND

4. In January 2001, the Commission established the World Radiocommunication Conference Advisory Committee (WRC-03 Advisory Committee) to assist it in the development of proposals for WRC-03. On January 8, 2003, the WRC-03 Advisory Committee finalized its recommendations and forwarded them to the Commission for consideration. In addition, NTIA submitted letters to the Commission containing draft proposals that had been developed by the Executive Branch agencies. By public notice, the Commission requested comment on these recommendations and draft proposals.[18] The *U.S. Proposals for WRC-03* that resulted for this open public process covered many of the items on the WRC-03 agenda.[19] In addition, the United States worked with other administrations in Region 2 to craft Inter-American Proposals.[20]

5. The International Telecommunication Union (ITU), under the auspices of the United Nations, convened WRC-03 from June 9 to July 4, 2003, in Geneva, Switzerland with more than 140 countries participating. WRC-03 considered 48 conference agenda items concerning the deployment, growth and evolving use of a broad range of spectrum-based services. The allocation changes adopted by WRC-03 directly impact Federal and non-Federal use of the radio spectrum. The actions taken at WRC-03 were published as the *WRC-03 Final Acts* and were subsequently codified in Article 5 of the 2004 edition of the ITU *Radio Regulations*.[21] We reflect these frequency allocations in the first three columns of Section 2.106 of the Commission's Rules as the International Table of Frequency Allocations (International Table).[22]

6. Since July 4, 2003, we have taken several actions with regards to domestic implementation of the *WRC-03 Final Acts*. Specifically, we have (1) allocated the band 108-117.975 MHz to differential global positioning system (GPS)[23] stations for the specific purpose of transmitting DGPS information intended for aircraft navigation;[24] (2) broadened the secondary land mobile-satellite service allocation in the band 14-14.5 GHz to a generic mobile-satellite service (MSS) allocation;[25] (3) made numerous

[18] *See Public Notice* entitled "The FCC's Advisory Committee for the 2003 World Radiocommunication Conference Approves Draft Proposals," DA 03-91, released January 15, 2003.

[19] *See United States of America Proposals for the Work of the Conference*, plenary meeting, Document_E, dated February 9, 2003 (*U.S. Proposals for WRC-03*); *United States of America Proposals for the Work of the Conference*, plenary meeting, Agenda Item 1.16, Document 38-E, April 28, 2003.

[20] *See* Organization of American States, Inter-American Telecommunications Commission (CITEL), Inter-American Proposals for WRC-03, Parts 1, 2, and 3, dated April 21, 2003.

[21] *See* ITU *Radio Regulations*, Edition of 2004 (ITU *Radio Regulations*) at Article 5 (Frequency allocations), Section IV (Table of Frequency Allocations).

[22] 47 C.F.R. § 2.106. The International Table is subdivided into the Region 1 Table (column 1), the Region 2 Table (column 2), and the Region 3 Table (column 3). The International Table is included in the Commission's Rules for informational purposes only. 47 C.F.R. § 2.104.

[23] Differential GPS allows the user to correct for GPS errors and to increase the overall accuracy of the GPS receiver.

[24] Review of Part 87 of the Commission's Rules Concerning the Aviation Radio Service, WT Docket No. 01-289, *Report and Order and Further Notice of Proposed Rule Making*, 18 FCC Rcd 21432 (2003) at para. 85. We also authorized DGPS stations to operate in the band 1559-1610 MHz.

[25] Amendment of Parts 2, 25, and 87 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Between 28 MHz and 36 GHz and to Otherwise

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allocation changes in the frequency range 5150-5725 MHz, which included making 255 megahertz of spectrum available for Unlicensed National Information Infrastructure (U-NII) devices;[26] (4) finalized the allocations in the frequency range 36-51 GHz (V-band);[27] (5) adopted new licensing and service rules for earth stations on vessels (ESVs);[28] and (6) proposed service rules and procedures to govern use of earth stations in the aeronautical mobile satellite-service in frequency bands allocated to the fixed-satellite service (FSS).[29]

7. In addition, we have received support and advice from NTIA with respect to the WRC-03 decisions. On January 27, 2004, NTIA, on behalf of the Executive Branch agencies, forwarded its recommendations for the national implementation of the results from WRC-03.[30] NTIA supplemented its recommendations by addressing the EESS (active) at 432-438 MHz on February 20, 2004.[31]

8. On March 29, 2004, we adopted a *Notice of Proposed Rulemaking* (*Omnibus NPRM*) in this proceeding.[32] In the *Omnibus NPRM*, we considered all remaining allocation changes that were made at WRC-03. In response, eight comments and three reply comments were filed.[33] The parties addressed our

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Update the Rules in this Frequency Range; and Amendment of Parts 2 and 25 of the Commission's Rules to Allocate Spectrum For Government and Non-Government Use in the Radionavigation-Satellite Service, ET Docket No. 02-305 and RM-10331, *Report and Order*, 18 FCC Rcd 23426 at 23454, para. 76 (2003) (*Above 28 MHz Report and Order*).

[26] Revision of Parts 2 and 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz band, ET Docket No. 03-122, *Report and Order*, 18 FCC Rcd 24484 (2003) (*5 GHz Report and Order*).

[27] Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations, IB Docket No. 97-95, *Second Report and Order*, 18 FCC Rcd 25428 (2003) (*V-band Second Report and Order*).

[28] Procedures to Govern the Use of Satellite Earth Stations on Board Vessels in the 5925-6425 MHz/3700-4200 MHz Bands and 14.0-14.5 GHz/11.7-12.2 GHz Bands, IB Docket No. 02-10, *Report and Order*, 20 FCC Rcd 674 (2005).

[29] Service Rules and Procedures to Govern the Use of Aeronautical Mobile Satellite Service Earth Stations in Frequency Bands Allocated to the Fixed Satellite Service, IB Docket No. 05-20, *Notice of Proposed Rule Making*, FCC 05-14, rel. February 9, 2005.

[30] *See* NTIA Letter from Fredrick R. Wentland, Associate Administrator, Office of Spectrum Management, NTIA, United States Department of Commerce, to Edmond J. Thomas, Chief, Office of Engineering and Technology (OET), FCC, dated January 27, 2004 (NTIA recommendations on WRC-03 implementation).

[31] *See* NTIA Letter from Fredrick R. Wentland, Associate Administrator, Office of Spectrum Management, NTIA, United States Department of Commerce, to Edmond J. Thomas, Chief, OET, dated February 20, 2004.

[32] Amendment of Parts 2, 25, and 73 of the Commission's Rules to Implement Decisions from the World Radiocommunication Conference (Geneva, 2003) (WRC-03) Concerning Frequency Bands Between 5900 kHz and 27.5 GHz and to Otherwise Update the Rules in this Frequency Range, ET Docket No. 04-139, *Notice of Proposed Rulemaking*, 69 FR 33698 (June 16, 2004), 19 FCC Rcd 6592 (2004). Comments on the *Omnibus NPRM* were due July 16, 2004 and reply comments were due August 2, 2004.

[33] See Appendix C for the list of commenting parties. Because American Samoa was not listed under States (a required entry) in the Electronic Comment Filing System (ECFS), comments filed by the American Samoa Amateur Radio Association (ASARA) originally did appear on ECFS until July 21, 2004. Subsequently, the information contained in the ASARA comments was refiled in two separate reply comments, one by ASARA and another by Mr. Gandy, President of ASARA. We have updated the ECFS to include American Samoa under the list of States.

proposals with regard to international broadcast stations, the 7 MHz realignment, EESS downlinks at 25.5-27 GHz, EESS (active) at 432-438 MHz, and Little LEO feeder link spectrum. We received no comments addressing our proposals for the other space radiocommunication services, the RNSS allocations, and the radiolocation upgrade.[34]

9. NTIA further supplemented its WRC-03 recommendations by stating its strong support for the proposed rules in total on October 15, 2004; by addressing footnote US342 (which deals with protection for the radio astronomy service (RAS)) on November 23, 2004; by addressing footnote US87 (which deals with space telecommand use of the band 449.75-450.25 MHz) on January 19, 2005; by addressing footnotes US378 and G118 (both of which deal with Federal operations in the band 1710-1755 MHz) on February 28, 2005; by addressing footnote G42 (which deals with the Federal space operation service in the band 1761-1842 MHz) and the information needed from non-Federal applicants in order to coordinate EESS systems in the band 25.5-27 GHz on March 1, 2005; and by addressing airborne and downlink operations in the bands 1390-1400 MHz and 1427-1432 MHz and footnote US74 (RAS protection in the band 1400-1427 MHz) on March 8, 2005.[35] On January 26, 2005, the Broadcasting Board of Governors (BBG) provided comments concerning HFBC issues.[36]

IV. DISCUSSION

10. In this section, we undertake a comprehensive discussion of all the allocation changes necessary to implement the WRC-03 decisions. As with our introductory section, this discussion is generally organized by frequency range but significantly expands on the key points outlined there.

A. The 7 MHz Realignment and the WARC-92 HFBC Bands

1. Background

11. While the band 7000-7300 kHz is allocated exclusively to Amateur Radio Service in the United States, the usefulness of the upper two thirds of the "40-meter band"[37] is impaired at night by the presence of strong broadcast signals from Regions 1 and 3. Under the WRC-03 transition plan, international broadcast stations will vacate the band 7100-7200 kHz by March 29, 2009, which will result in a dramatic improvement in the usefulness of the 40-meter band. In the following paragraphs, we discuss the HFBC bands, the 40-meter band, WRC-03's realignment of the allocations in the 7 MHz region of the spectrum, and the reallocation's impact on non-Federal licensees in the fixed and mobile services.

12. *The HFBC Service.* International broadcast stations transmit on frequencies between 5900 kHz and 26100 kHz that are allocated to the broadcasting service. These stations can be received at great distances because their signals bounce off the ionosphere and rebound to Earth, often thousands of miles

[34] Space radiocommunication services are defined as any radiocommunication involving the use of one or more space stations or the use of one or more reflecting satellites or other objects in space. 47 C.F.R. § 2.1.

[35] *See* NTIA Letters from Fredrick R. Wentland, Associate Administrator, Office of Spectrum Management, NTIA, United States Department of Commerce, to Edmond J. Thomas, Chief, OET, dated October 15, 2004, November 23, 2004, January 19, 2005, February 28, 2005, March 1, 2005 (two letters), and March 8, 2005.

[36] *See* BBG Letter from John O. Wood, BBG's Interdepartment Radio Advisory Committee (IRAC) Representative to Edmond J. Thomas, Chief, OET, received on January 26, 2005 (BBG Letter).

[37] Amateur operators generally speak in terms of wavelength (instead of frequency). Wavelength (in meters) is equal to the speed of light (typically rounded to 3×10^8 m/sec) divided by the frequency (in hertz). Thus, the band 7-7.3 MHz is known as the 40-meter band.

from their point of origin.[38] Most international broadcast stations are operated by national governments. However, HFBC programs originating in the United States are provided by both Federal and privately operated stations.[39] The Commission licenses international broadcast stations to private entities under Part 73, Subpart F of its Rules.[40] At present, there are 24 private sector licensees that are authorized to operate 67 HFBC transmitters.[41]

13. In the ITU *Radio Regulations*, 2930 kilohertz of spectrum in eight frequency bands is allocated for exclusive HFBC use throughout the world[42] and until April 1, 2007, an additional 790 kilohertz is allocated to the broadcasting and fixed services on a co-primary basis throughout the world (the "WARC-92 HFBC bands").[43] After April 1, 2007, the WARC-92 HFBC bands are allocated to the broadcasting service on an exclusive basis, and at that time, the amount of spectrum allocated for exclusive HFBC use throughout the world will increase to 3720 kilohertz in ten frequency bands. We note, however, that the ITU's transition plan (reflected in international footnotes 5.136, 5.143, 5.146, and 5.151) permits stations to continue to use frequencies within the WARC-92 HFBC bands for their previously allocated purposes (*e.g.*, fixed service) for communications within a country on the condition that harmful interference is not caused to the reception of international broadcast programming.[44]

[38] Numerous factors affect the reception of these transmissions, including the time of day, climate, and atmospheric noise, as well as co-channel and adjacent channel interference from other international broadcast stations around the world. Unlike other broadcasting services where a licensee broadcasts on the same frequency at all times, international broadcasters are assigned frequencies in several bands and vary their transmitter frequency on a seasonal basis to account for changes in propagation conditions, changing programming needs, and interference conditions. The United States participates in international frequency coordination meetings to reduce potential harmful interference to and from foreign HF broadcasts.

[39] All U.S. Government and government sponsored, non-military, international broadcasting has been consolidated under BBG. BBG's HF broadcasters are Radio Farda, Radio Free Asia, Radio Free Europe/Radio Liberty, Radio Marti, Radio Sawa, and the Voice of America. For more information, *see* http://www.bbg.gov/index.cfm.

[40] 47 C.F.R. Part 73, Subpart F – International Broadcast Stations.

[41] The Commission's International Bureau maintains the FCC HF Broadcasting home page at http://www.fcc.gov/ib/sand/neg/hf_web/. In the "Final Winter '04 Version 2" seasonal schedule, the Commission has coordinated the frequencies, days and times of operation, transmitter power, target zones, *etc.* for 24 non-Federal licensees; see http://www.fcc.gov/ib/sand/neg/hf_web/B04FCC02.TXT. Station information for HFBC stations is available at http://www.fcc.gov/ib/sand/neg/hf_web/stations.html.

[42] Prior to WARC-92, the following eight bands were allocated exclusively to the HFBC service on a worldwide basis: 5950-6200 kHz, 9500-9900 kHz, 11650-12050 kHz, 13600-13800 kHz, 15100-15600 MHz, 17550-17900 kHz, 21450-21850 kHz, and 25670-26100 kHz. In addition, the band 7100-7300 kHz was allocated to the HFBC service on an exclusive basis in Regions 1 and 3. On the condition that harmful interference is not caused to the broadcasting service, fixed stations communicating within national borders may continue to use frequencies in the bands 9775-9900 kHz, 11650-11700 kHz, and 11975-12050 kHz. 47 C.F.R. § 2.106, footnotes 5.147 and US367.

[43] At WARC-92, ten bands were allocated to the fixed and HFBC services on a co-primary basis. Eight of the WARC-92 HFBC bands are adjacent to six of the original HFBC bands (5900-5950 kHz, 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 13570-13600 kHz, 13800-13870 kHz, 15600-15800 kHz, and 17480-17550 kHz), one of the WARC-92 HFBC bands is adjacent to the Regional allocation at 7100-7300 kHz (7300-7350 kHz), and one of the WARC-92 HFBC bands is not adjacent to an original HFBC band (18900-19020 kHz). The band 5900-5950 kHz is also allocated on a primary basis to the land mobile service in Region 1 and to the mobile except aeronautical mobile (R) service in Region 2.

[44] 47 C.F.R. § 2.106, footnotes 5.136, 5.143, 5.146, and 5.151. The international footnotes, which are specific to the International Table, are described and listed immediately following the tabular material in Section 2.106 of the Commission's Rules. When an international footnote is adopted by the United States, it will appear in the U.S. Table and is binding on U.S. licensees.

14. Prior to WRC-03, there was also one Regional HFBC allocation. Specifically, the band 7100-7300 kHz was allocated for exclusive HFBC use in Regions 1 and 3 and for exclusive use by the amateur service in Region 2. Because international broadcast stations are permitted to use much higher power than amateur radio operators, HFBC transmissions originating in Regions 1 and 3 can cause interference to amateur service reception.[45] In order to permit the broadcasting service unfettered use within Regions 1 and 3, international footnote 5.142 stated that amateur service use of the band 7100-7300 kHz in Region 2 may not impose constraints on the broadcasting service intended for use within Regions 1 and 3.[46]

15. In the United States, the global HFBC spectrum, including the WARC-92 HFBC bands, has been allocated to the broadcasting service and the Commission has adopted a transition plan (footnote US366)[47] that is equivalent to the ITU's plan for the WARC-92 HFBC bands.[48]

16. Table 1, below, provides an overview of the HFBC bands and the 7 MHz realignment, which will be discussed in detail in the following paragraphs. Specifically, column 3 (titled "Bands prior to the end of the transition periods") lists the original eight HFBC bands (indicated in the Remarks column as "Allocated for exclusive HFBC use"), the ten WARC-92 HFBC bands (indicated in the Remarks column as "WARC-92 HFBC band"), and the Regional allocations at 7100-7300 kHz prior to WRC-03's reallocation decision. Column 2 (titled "Bands at the end of the transition periods") lists the ten global HFBC bands, the two Regional HFBC bands, and the 40-meter band as they will exist at the conclusion of the WRC-03 transition period (March 29, 2009).

[45] The operating power for international broadcast stations must be at least 50 kW (carrier power). 47 C.F.R. § 73.751. Worldwide, most international broadcast stations transmit at least 100 kW, and there are a significant number of stations that transmit at 500 kW. In contrast, amateur stations are limited to 1.5 kW PEP, except that in certain frequency bands, amateur stations are more limited in power. For example, amateur stations are limited to 200 W PEP in the segment: (1) 7.050-7.075 MHz when the station is within Region 1 or Region 3; and (2) 7.10-7.15 MHz. 47 C.F.R. § 97.313. Because international broadcast stations transmit at significantly higher power levels than does the amateur service, the propagation of HFBC signals intended for use in Region 1 and Region 3 often continues into the United States and cause interference to amateur reception.

[46] 47 C.F.R. § 2.106, footnote 5.142.

[47] Footnote US366 currently reads as follows: On April 1, 2007, the bands 5900-5950 kHz, 7300-7350 kHz, 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 13570-13600 kHz, 13800-13870 kHz, 15600-15800 kHz, 17480-17550 kHz, and 18900-19020 kHz shall be allocated exclusively to the broadcasting service. Beginning April 1, 2007, frequencies in these bands may be used by stations in the fixed and mobile services, communicating only within the United States and its insular areas, on the condition that harmful interference is not caused to the broadcasting service. When using frequencies for fixed and mobile services, licensees shall be limited to the minimum power needed to achieve communications and shall take account of the seasonal use of frequencies by the broadcasting service published in accordance with Article 12 of the ITU *Radio Regulations*. 47 C.F.R. § 2.106, footnote US366.

[48] At the request of NTIA, the fixed and mobile service allocations in the WARC-92 HFBC bands are shown as entries in the U.S. Table and footnote US366 sunsets those allocations by stating that the WARC-92 HFBC bands are allocated exclusively to the broadcasting service as of April 1, 2007. Because of the prolonged implementation period, this action highlights actual use in the United States. In contrast, the fixed and mobile service allocations are not shown as entries in the International Table. Instead, these allocations have been moved into footnotes 5.136, 5.143, 5.146, and 5.151. Amendment of Parts 2, 73, 74, 80, 90, and 97 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Below 28000 kHz, ET Docket No. 02-16, *Report and Order*, 18 FCC Rcd 3423 at 3429, paras. 11-15 (2003) (*Below 28 MHz Report and Order*).

Table 1: The Ten Global HFBC Bands, the Two Regional HFBC Bands, and the 40-Meter Band as They Will Exist at the Conclusion of the WRC-03 Transition Period (March 29, 2009)			
Short Name	Bands at the end of the transition periods	Bands prior to the end of the transition periods	Remarks
6 MHz	5900-6200 kHz: Global HFBC	5900-5950 kHz	WARC-92 HFBC band; unused aeronautical mobile service allocation is being deleted; see footnotes 5.134, 5.136, US366.
		5950-6200 kHz	Allocated for exclusive HFBC use.
40-Meter Band	7000-7100 kHz: At WRC-03, Kenya was added to footnote 5.140 and new footnote 5.141A (the band 7000-7100 kHz is additionally allocated to the fixed and land mobile services on a secondary basis in Uzbekistan and Kyrgyzstan) was added.		Prior to WRC-03, the band 7000-7100 kHz was allocated exclusively to the amateur and amateur-satellite services on a worldwide basis, except that the segment 7000-7050 kHz was: (1) additionally allocated to the fixed service on a primary basis in the five countries listed in footnote 5.140; and (2) alternatively allocated to the fixed service on a primary basis in the six countries listed in footnote 5.141.
	The band 7100-7200 kHz is reallocated to the amateur service in much of the world.	Prior to WRC-03, the band 7100-7200 kHz was allocated for amateur use in Region 2 and for HFBC use in Region 1 and Region 3.	*7 MHz Realignment:* Until March 29, 2009, the band 7100-7200 kHz is allocated for co-primary amateur and HFBC use; thereafter, the band 7100-7200 kHz is allocated to the amateur service on an exclusive basis in much of the world; see footnotes 5.141A-C, 5.142, and US395. Footnote 5.142 (Until March 29, 2009, amateur use of 7100-7200 kHz in Region 2 shall not impose constraints on HFBC in Regions 1 and 3)
Shared with HFBC	7200-7300 kHz is allocated exclusively to the amateur service in Region 2 (no change)		Footnote 5.142 (Amateur use of 7200-7300 kHz in Region 2 shall not impose constraints on HFBC in Regions 1 and 3)
Shared with amateurs	7200-7300 kHz: Regional HFBC band (no change)		Prior to WRC-03, the band 7100-7300 kHz was allocated exclusively for HFBC use in Region 1 and Region 3.
7 MHz	7300-7400 kHz: Global HFBC	7300-7350 kHz	WARC-92 HFBC band; unused aeronautical mobile service allocation is being deleted; see footnotes 5.134, 5.143, US396.
	7400-7450 kHz: Regional HFBC band (reallocated for exclusive HFBC use on a phased-in basis in Region 1 and Region 3)	Prior to WRC-03, the band 7350-7450 kHz was allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis throughout the world.	*7 MHz Realignment:* Until March 29, 2009, the bands 7350-7400 kHz (worldwide) and 7400-7450 kHz (only in Region 1 and Region 3) are allocated to the HFBC and fixed services on a co-primary basis and to the land mobile service (but to the broader mobile service in the United States) on a secondary basis; thereafter, the band 7350-7450 kHz is allocated exclusively for HFBC use, except in the 19 countries listed in footnote 5.143C where the fixed service remains allocated on a co-primary with the HFBC; unused aeronautical mobile service allocation is being deleted from 7350-7400 kHz; see footnotes 5.143A, 5.143B, 5.143D, and US396.
9 MHz	9400-9900 kHz: Global HFBC	9400-9500 kHz	WARC-92 HFBC band; see footnotes 5.134, 5.146, and US366.
		9500-9900 kHz	Allocated for exclusive HFBC use; see footnotes 5.147, US367.
11 MHz	11600-12100 kHz: Global HFBC	11600-11650 kHz	WARC-92 HFBC band; see footnotes 5.134, 5.146, and US366.
		11650-12050 kHz	Allocated for exclusive HFBC use; see footnotes 5.147, US367.
		12050-12100 kHz	WARC-92 HFBC band; see footnotes 5.134, 5.146, and US366.
13 MHz	13570-13870 kHz: Global HFBC	13570-13600 kHz	WARC-92 HFBC band; unused non-Federal fixed service allocation is being deleted; see footnotes 5.134, 5.151, US366.
		13600-13800 kHz	Allocated for exclusive HFBC use.
		13800-13870 kHz	WARC-92 HFBC band; see footnotes 5.134, 5.151, and US366.
15 MHz	15100-15800 kHz: Global HFBC	15100-15600 kHz	Allocated for exclusive HFBC use.
		15600-15800 kHz	WARC-92 HFBC band; see footnotes 5.134, 5.146, and US366.
17 MHz	17480-17900 kHz: Global HFBC	17480-17550 kHz	WARC-92 HFBC band; unused non-Federal fixed service allocation is being deleted; see footnotes 5.134, 5.146, US366.
		17550-17900 kHz	Allocated for exclusive HFBC use.
19 MHz	18900-19020 kHz: Global HFBC	18900-19020 kHz	WARC-92 HFBC band; unused non-Federal fixed service allocation is being deleted; see footnotes 5.134, 5.146, US366.
21 MHz	21450-21850 kHz: Global HFBC (no change)		Allocated for exclusive HFBC use.
25 MHz	25670-26100 kHz: Global HFBC (no change)		Allocated for exclusive HFBC use. Footnote US25 (Remote pickup broadcast stations may be authorized in the band 25850-26100 kHz to on the condition that harmful interference is not caused to HFBC reception)

17. *The Amateur Service.* The amateur service[49] uses HF frequencies for long distance communications.[50] In particular, the band 7000-7100 kHz is allocated to the amateur and the amateur-satellite services on an exclusive basis in much of the world[51] and the band 7100-7300 kHz is allocated to the amateur service on an exclusive basis in Region 2. In the United States, the band 7000-7300 kHz is allocated exclusively to the Amateur Radio Service for these purposes. International footnote 5.142 has been adopted domestically,[52] and thus, the Commission does not act on complaints of interference to amateur service reception in the band 7100-7300 kHz from HFBC signals that are targeted to zones of reception in Region 1 and Region 3, but that nevertheless propagate into the United States and its insular areas.[53] In accordance with the Region 3 Table, the band 7100-7300 kHz is allocated to the broadcasting service in the U.S. Pacific insular areas located in Region 3.[54]

18. FCC-licensed amateur stations that are located in Region 2 are authorized to transmit phone emissions in the segment 7.150-7.300 MHz.[55] FCC-licensed amateur stations that are located in Regions 1 and 3, and those stations located within Region 2 that are west of 130° west longitude or south of 20° north latitude (which includes Alaska, Hawaii, and the U.S. Pacific insular areas in Region 2) are authorized to transmit phone emissions in the segment 7.075-7.100 MHz.[56] Therefore, when communicating between the United States mainland and the U.S. Pacific insular areas in Region 3,

[49] The amateur service is a radiocommunication service for the purposes of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest. 47 C.F.R. § 2.1. The amateur radio service is regulated under Part 97 of the Commission's Rules. 47 C.F.R. Part 97.

[50] During daylight hours, the International Amateur Radio Union (IARU) states that the band 7-7.3 MHz carries the bulk of amateur sky wave communications over distances of less than 1300 kilometers (approximately 800 miles). During winter and during periods of low solar activity, and at other times when the maximum usable frequency (MUF) falls below 10 MHz, the IARU states that the band 7-7.1 MHz (7-7.3 MHz in Region 2) supports the bulk of amateur intercontinental communications during hours of darkness. *See* "Amateur Service Spectrum Requirements at 7 MHz," which is an information paper by the IARU and that is available at http://www.iaru.org/7-MHz-Spectrum.pdf at page 2. In the Commission's Rules for international broadcast stations, MUF is defined as the highest frequency which is returned by ionospheric radio propagation to the surface of the Earth for a particular path and time of day for 50 percent of the reference month. 47 C.F.R. § 73.701(m).

[51] Prior to WRC-03, the band 7000-7100 kHz was allocated exclusively to the amateur and amateur-satellite services on a worldwide basis, except that the segment 7000-7050 kHz was: (1) additionally allocated to the fixed service on a primary basis in the five countries listed in footnote 5.140; and (2) alternatively allocated to the fixed service on a primary basis (that is, the segment 7000-7050 kHz was not allocated to the amateur service) in the six countries listed in footnote 5.141. At WRC-03, Kenya was added to footnote 5.140 and new footnote 5.141A, which states that the band 7000-7200 kHz is additionally allocated to the fixed and land mobile services on a secondary basis in Uzbekistan and Kyrgyzstan, was added.

[52] When an international footnote is adopted by the United States, it appears in the U.S. Table and is binding on U.S. licensees.

[53] Amateur operators may file interference complaints if they receive interference from HFBC signals that are directed to zones of reception in Region 2. In the current seasonal schedule, we observe that several HFBC signals are directed to the United States in the band 7100-7300 kHz.

[54] The operation of stations in the Pacific insular areas located in Region 3 are generally governed by the Region 3 Table. The U.S. Pacific insular areas in Region 3 are: Guam, the Northern Mariana Islands, American Samoa, and several unpopulated or lightly populated islands (Baker Island, Howland Island, Jarvis Island, Kingman Reef, Palmyra Atoll, and Wake Atoll). 47 C.F.R. § 2.105, note 4.

[55] 47 C.F.R. § 97.305(c).

[56] 47 C.F.R. § 97.307(f)(11).

FCC-licensed amateur operators currently must use two frequencies (commonly known as "split frequency" operations).[57]

19. *WRC-03's Allocation Decisions.* WRC-03 took two allocation actions that affect the HFBC service. First, WRC-03 revised international footnote 5.134 to meet the needs of international broadcasters in that it permits the continued use of traditional DSB transmissions (as well as SSB transmissions) in the WARC-92 HFBC bands as HF broadcasters transition to digital technology.[58] Footnote 5.134 also requires the use of "seasonal planning" for the WARC-92 HFBC bands.[59] Specifically, footnote 5.134 was modified to read as follows:

> 5.134 The use of the bands 5900-5950 kHz, 7300-7350 kHz, 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 13570-13600 kHz, 13800-13870 kHz, 15600-15800 kHz, 17480-17550 kHz and 18900-19020 kHz by the broadcasting service as from 1 April 2007 is subject to the application of the procedure of Article 12. Administrations are urged to use these bands to facilitate the introduction of digitally modulated emissions in accordance with the provisions of Resolution 517 (Rev.WRC-03).

20. Second, WRC-03 realigned the allocations near 7 MHz in order to expand the worldwide 40-meter band by 100 kilohertz (from 7000-7100 kHz to 7000-7200 kHz).[60] This action partially harmonizes the Regional amateur and broadcasting service allocations in the band 7100-7300 kHz and is a large step in resolving incompatibilities between these services that has existed for many years to the substantial detriment of the Amateur Radio Service. This partial harmonization was achieved by shifting the broadcasting service allocation in Regions 1 and 3 up in frequency by 100 kilohertz (from 7100-7350 kHz to 7200-7450 kHz). In addition, the band 7350-7400 kHz was allocated to the HFBC service in Region 2. Thus, the amount of HFBC spectrum at 7 MHz in Regions 1 and 3 remains constant (at 250 kilohertz); the amount of spectrum that is allocated to the HFBC service in Region 2 is increased from 50 kilohertz (7300-7350 kHz) to 100 kilohertz (7300-7400 kHz); and consequently, at the conclusion of the WRC-03 transition period (March 29, 2009), the amount of spectrum that is allocated for exclusive HFBC use on a global basis (except in the 19 countries listed in footnote 5.143C) has been increased from 50 kilohertz (7300-7350 kHz) to 100 kilohertz (7300-7400 kHz), which is sandwiched between two frequency bands (7200-7300 kHz and 7400-7450 kHz) that will be allocated to the broadcasting service on an exclusive basis in Region 1 and Region 3. We note that the International Amateur Radio Union (IARU) states that this reallocation will result in "a dramatic improvement in the 40-meter band."[61]

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[57] We note that the IARU has developed bandplans for each of the Regions. The IARU Region 1, Region 2, and Region 3 Bandplans limit phone emissions to the segments 7.045-7.100 MHz, 7.050-7.300 MHz, and 7.030-7.300 MHz, respectively. However, prior to WRC-03, there was no amateur service allocation in Region 3 for the band 7.1-7.3 MHz, and thus, the IARU Region 3 Bandplan states that amateur stations shall not cause harmful interference to the broadcasting service in the segment 7.1-7.3 MHz. The IARU Regional bandplans can be viewed at http://www.iaru.org/bandplans.html.

[58] Prior to WRC-03, footnote 5.134 had prohibited traditional DSB transmissions in the WARC-92 HFBC bands.

[59] WRC-97 adopted Article 12 as a simple and flexible seasonal planning procedure for the HFBC bands based on coordination. *See Final Acts* of the World Radiocommunication Conference (Geneva, 1997) (WRC-97), Article 12. *See also* ITU *Radio Regulations*, Article 12 (Seasonal planning of the HF bands allocated to the broadcasting service between 5900 kHz and 26100 kHz). Twice yearly, administrations are required to submit their projected seasonal broadcasting schedules in the relevant frequency bands to the ITU. These schedules cover the following seasonal periods: Schedule A is from the last Sunday in March to the last Sunday in October; and Schedule B is from the last Sunday in October to the last Sunday in March.

[60] The band 7000-7100 kHz is allocated to the amateur and amateur-satellite services on a co-primary basis throughout the world. Prior to WRC-03, the band 7100-7300 kHz was allocated exclusively to the broadcasting service in Region 1 and Region 3 and exclusively to the amateur service in Region 2.

[61] *See* "IARU WRC-03 Final Report from Geneva" at http://www.iaru.org/rel030703.html.

21. In order to provide international broadcasters in the band 7100-7200 kHz with sufficient time to relocate to other frequency bands, WRC-03 adopted a transition period of approximately four years (January 1, 2005 to March 29, 2009). During the transition period, the band 7100-7200 kHz is allocated to the amateur and broadcasting services on a co-primary basis in Regions 1 and 3.[62] After March 29, 2009, the band 7100-7200 kHz is allocated exclusively to the amateur service. Until the conclusion of the transition period, international footnote 5.142 continues to apply to the band 7100-7200 kHz. Specifically, WRC-03 revised footnote 5.142 to read as follows:

> 5.142 Until 29 March 2009, the use of the band 7100-7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After 29 March 2009 the use of the band 7200-7300 kHz in Region 2 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

22. WRC-03 provided this same transition period (January 1, 2005 to March 29, 2009) for fixed and land mobile service licensees in the band 7350-7450 kHz (7350-7400 kHz in Region 2). During the WRC-03 transition period, the band 7350-7450 kHz (7350-7400 kHz in Region 2) is allocated to the broadcasting and fixed services on a co-primary basis and to the land mobile service on a secondary basis.[63] At the conclusion of the WRC-03 transition period, the band 7350-7400 kHz is allocated exclusively to the broadcasting service in Region 2; and the band 7350-7450 kHz is allocated exclusively to the broadcasting service in Regions 1 and 3, except in the 19 countries that are listed in international footnote 5.143C (most are in North Africa and the Middle East) where the band 7350-7450 kHz will remain allocated to the fixed service on a co-primary basis with the broadcasting service.[64] Moreover, at the conclusion of the WRC-03 transition period, the spectrum allocated exclusively to the broadcasting service may continue to be used by stations of the fixed and land mobile services, communicating only within the boundary of the country in which they are located, on condition that harmful interference is not caused to the broadcasting service.

23. WRC-03 changed the secondary land mobile service allocation in the bands 6765-7000 kHz and 7400-8100 kHz in Region 2 (7450-8100 kHz in Regions 1 and 3) to a primary mobile except aeronautical mobile (R) service allocation, effective March 29, 2009. The transition plan for these bands is set forth in international footnotes 5.138A and 5.143E.[65] This WRC-03 action, in conjunction with the existing primary fixed service allocations, was designed to permit greater flexibility and will also facilitate the use of frequency adaptive techniques, thereby leading to greater efficiency in the use of this spectrum.

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[62] Specifically, WRC-03 revised the ITU's Table of Frequency Allocations (shown as the International Table in the Commission's Rules) for the band 7100-7200 kHz by adding an entry for the primary amateur service allocation (shown as "AMATEUR"), by removing the entry for the primary broadcasting service allocation, and by adding international footnote 5.141C, which reads as follows: In Regions 1 and 3, the band 7100-7200 kHz is allocated to the broadcasting service until 29 March 2009 on a primary basis.

[63] See Appendix A for modifications to 47 CFR § 2.106. In this case, footnotes 5.143A (the Region 3 transition plan), 5.143B (the Region 1 transition plan), and 5.143D (the Region 2 transition plan) are being added to the list of international footnotes.

[64] See Appendix A wherein footnote 5.143C is being added to the list of international footnotes.

[65] While the direct Table entry for the secondary land mobile service allocation in the bands 6765-7000 kHz and 7450-8100 kHz has been replaced with a primary mobile except aeronautical mobile (R) service allocation in the International Table, this allocation upgrade is not effective until March 29, 2009, which is specified in international footnotes 5.138A and 5.143E. Footnote 5.138A states that: "Until 29 March 2009, the band 6765-7000 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis. After this date, this band is allocated to the fixed and the mobile except aeronautical mobile (R) services on a primary basis." Footnote 5.143E states that: "Until 29 March 2009, the band 7450-8100 kHz is allocated to the fixed service on a primary basis and to the land mobile service on a secondary basis."

24. *Impact on the Fixed and Mobile Services.* As shown in Table 2, below, the Commission has issued 249 call signs (*i.e.*, licenses)[66] (each license contains operating authority for at least one station) for stations in the fixed or mobile services in the ten WARC-92 HFBC bands and the band 7350-7400 kHz (collectively, "the reallocated spectrum").[67] Specifically, the Commission has issued 219 licenses in the Industrial/Business Radio Pool for conventional applications, 18 licenses for Alaska private-fixed stations, six licenses for coast stations, and one license in the Public Safety Radio Pool for conventional applications.[68] Almost half (123 of the 249 licenses) of the affected licenses authorize fixed or mobile operations in the band 7350-7400 kHz. In particular, we note that 41 licensees (with 102 licenses) in the Industrial/Business Radio Pool, 11 licensees (with 18 licenses) of Alaska private-fixed stations, and three coast station licensees (each with a single license) would be impacted by the reallocation of the band 7350-7400 MHz.

25. Most (88%) of the licenses that the Commission has issued for fixed and mobile operations in the reallocated spectrum are in the Industrial/Business Radio Pool.[69] Nearly half of these licenses (102 out of 219 licenses) authorize the use of the band 7350-7400 kHz. We note that fixed and mobile licensees may not generally use frequencies in the reallocated spectrum in the place of other operational circuits permitted by the Commission's Rules.[70] We also note that, by Commission Rule, equipment operating in the reallocated spectrum is required to be capable of transmitting on any frequency in the bands assigned to the particular operation and to be capable of immediate change among frequencies (that is, the equipment is required to be tunable across the specified frequency bands).[71] In Public Notice No. 4126, the Commission made 11.62 megahertz of spectrum available for long distance

[66] In contrast, the Commission had issued 205 licenses as of February 12, 2001. At that time, there were 184 fixed and 21 coast station licenses. Of the 184 licenses for fixed stations, 162 were authorized under § 90.266 for long distance communications, 17 were for Alaska private-fixed stations authorized under § 80.387 to use the carrier frequency 11601.5 kHz, and 5 were for aeronautical fixed stations. Amendment of Parts 2, 73, 74, 80, 90, and 97 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Below 28000 kHz, ET Docket No. 02-16, *Notice of Proposed Rule Making and Order*, 17 FCC Rcd 2728 at 2734 and 2787, para. 10 and Appendix B (2003).

[67] The number of licenses was obtained by searching each frequency band using the Commission's Universal Licensing System (ULS) on March 5, 2005.

[68] The Commonwealth of the Northern Mariana Islands is licensed (call sign KUP71) to transmit a maximum ERP of 96 watts from a single fixed station using the frequency 15.625 MHz (with a necessary bandwidth of 2.8 kHz) at its Civil Defense Emergency Operation Center in Saipan. Call sign KUP71 authorizing the use of 11 frequencies for disaster communication purposes in Saipan. Because this narrow bandwidth requirement could be met in other bands allocated to the fixed service (*e.g.*, the band 15800-16360 kHz), and since this frequency cannot be used to provide operational communications circuits (47 C.F.R. § 90.20(d)(6)), we believe that this public safety use can continue on a non-interference, unprotected basis to the HFBC service as specified in footnote US366.

[69] The use of frequencies in the range from 2000 to 25,000 kHz by licensees in the Industrial/Business Radio Pool is limited to entities that are involved in: (1) prospecting for petroleum, natural gas, or petroleum products, (2) distribution of electric power or the distribution by pipeline of fuels or water; (3) exploration, its support services, and the repair of pipelines; or (4) the repair of telecommunication circuits. Circuits operating on these frequencies may be used for only certain specified purposes. For example, one of the seven specified uses includes providing standby backup communications for circuits which have been disrupted and which directly affect the safety of life, property, or the national interest or are used for coordinating inter-utility, intra-utility, and power pool distribution of electric power. 47 C.F.R. §§ 90.35(b)(3), 90.35(c)(1).

[70] Specifically, except as provided in Part 90, licensees may not use frequencies in the range from 2000 kHz to 25,000 kHz in the place of other operational circuits permitted by the Commission's Rules. 47 C.F.R. § 90(c)(1)(ii).

[71] 47 C.F.R. § 2.102(h)(3)(iii).

communications under Section 90.266 of its Rules.[72] The reallocated spectrum totals 840 kilohertz (790 kilohertz in the ten WARC-92 HFBC bands plus 50 kilohertz in the WRC-03 HFBC band (7350-7400 kHz)). Thus, only 7.2% of the total spectrum currently specified as being available under Section 90.266 is affected by the reallocation of fixed and mobile service spectrum to the HFBC service. In practice, licensees are licensed for an entire frequency band (*e.g.*, 7300-8100 MHz) rather than for specific frequencies, and thus will not need to modify their licenses in order to use frequencies in the remainder of their licensed spectrum. Also, licensees tend to be licensed on more than one frequency band for use under Section 90.266. Because of the nature of licensing in the reallocated spectrum, as well as the other options available to these licensees, we conclude that the effect on licensees in the fixed and mobile services will be minimal.

26. The Commission has issued 18 licenses (9.2% of the fixed and mobile licenses in the reallocated spectrum) for Alaska private-fixed stations that operate in the band 7350-7400 kHz. All 18 of these licenses authorize the use of the sub-band 7368.5-7371.3 kHz[73] and five of these licenses additionally authorize the use of the carrier frequency 11601.5 kHz.[74] In the *Below 28 MHz Report and Order*, the Commission decided that, after April 1, 2007, Alaska private-fixed stations could continued to use the carrier frequency 11601.5 kHz on the condition that harmful interference is not caused to HF broadcasting.[75] As discussed in paragraph 52, below, we conclude that reallocation of the sub-band 7368.5-7371.3 kHz is not warranted.

27. The Commission has issued six licenses in the Coastal Group radio service in the reallocated spectrum: three for public coast stations and three for private coast stations. Each of the six licenses authorizes a single coast station.[76] The reallocation of the band 7350-7400 kHz affects three of these licensees: Cruiseemail (7350 kHz and 7390 kHz); Shipcom, LLC (7398 kHz); and Sailmail Association (7353.6 kHz and 7378.6 kHz). Since our last review, we note that the number of coast station licenses in the reallocated spectrum has decreased from 21 to 6.

[72] Public Notice No. 4126, titled "2-25 MHz HF Frequency Bands Available for Part 90 Long Distance Communications," dated August 12, 1988; and 47 C.F.R. § 90.266, titled "Long distance communications on frequencies below 25 MHz."

[73] Section 80.387 of our Rules states that the carrier frequency 7368.5 kHz is assignable for point-to-point simplex radiotelephone communications between private fixed stations in Alaska. 47 C.F.R. § 80.387(b). Our licensing records indicate that all of the Alaska Group licensees are authorized to operate in the sub-band 7368.5-7371.3 kHz (indicated as "7.36990, 7.36850[C]" MHz and by emission designator 2K80J3E in the ULS database). That is, each of these licensees is authorized to transmit telephony using single-sideband, suppressed carrier modulation, and the received signal is centered on the frequency 7.36990 MHz with a necessary bandwidth of 2.8 kHz. 47 C.F.R. §§ 2.201 and 2.202(b).

[74] 47 C.F.R. § 80.387(b).

[75] *Below 28 MHz Report and Order*, 18 FCC Rcd at 3430, para. 14. This decision is codified at 47 C.F.R. § 80.387(b), note 5.

[76] The public coast stations are located at: Palo Alto, CA (7316.6 kHz and 7319.6 kHz, call sign KFS); Seabrook, MD (7350 kHz and 7390 kHz, call sign WHX); and Coden, AL (7398 kHz, call sign WLO). The private coast stations are located at: Woods Hole, MA (5948.6 kHz, call sign KXC713); Houma, LA (7301.4 kHz, call sign WPXY244); and San Diego, CA (7353.6 kHz and 7378.6 kHz, call sign WQAB964).

<table>
<tr><th colspan="4">Table 2: Fixed and Mobile Bands Reallocated for HFBC Use</th></tr>
<tr><th>WARC-92 HFBC Bands plus 7350-7400 kHz</th><th>Fixed and Mobile Service Allocations</th><th colspan="2">Number of non-Federal Licenses in Each of the Radio Services that May Be Affected</th></tr>
<tr><td>5900-5950 kHz</td><td>FIXED
MOBILE except aeronautical mobile (R)</td><td colspan="2">1 Coastal Group (MC)</td></tr>
<tr><td>7300-7350 kHz</td><td rowspan="2">FIXED
Mobile</td><td>7300-7350 kHz:
101 Industrial/Business Pool, Conventional (IG)
2 MC</td><td rowspan="2">7300-7400 kHz:
102 IG[77]
18 MK
5 MC
Total = 125 licenses are potentially affected</td></tr>
<tr><td>7350-7400 kHz
(WRC-03 HFBC band)</td><td>7350-7400 kHz:
102 IG
18 Alaska Group (MK)
3 MC</td></tr>
<tr><td>9400-9500 kHz</td><td rowspan="4">FIXED</td><td colspan="2">49 IG</td></tr>
<tr><td>11600-11650 kHz</td><td colspan="2">4 IG and 5 MK</td></tr>
<tr><td>12050-12100 kHz and 13800-13870 kHz</td><td colspan="2">1 IG license in each band.</td></tr>
<tr><td>15600-15800 kHz</td><td colspan="2">62 IG and 1 public safety pool, conventional (PW)</td></tr>
<tr><td>13570-13600 kHz, 17480-17550 kHz, and 18900-19020 kHz</td><td colspan="3">Currently, no license is listed in the ULS for these three WARC-92 HFBC bands.</td></tr>
</table>

2. Proposal and Comments

28. *Proposal.* We proposed to implement WRC-03's realignment of the allocations near 7 MHz with minor modifications.[78] Specifically, because the bands 6765-7000 kHz and 7300-7350 kHz are allocated to the mobile service (not the land mobile service) in the United States, we proposed to adopt two United States footnotes (shown as the *Omnibus NPRM* as USxxx and USyyy) that encompass the broader mobile service, but that otherwise mirrored the international transition plans (footnotes 5.138A and 5.143E[79]). We also proposed to make the primary mobile except aeronautical mobile (R) service allocation in the band 7400-8100 kHz effective as of the effective date of the Report and Order in this proceeding (instead of March 29, 2009). We proposed to add international footnote 5.134 to each of the WARC-92 HFBC bands in the United States Table of Frequency Allocations (U.S. Table), which would require the use of seasonal planning in these HFBC bands.[80]

[77] There are 107 IG licenses in the band 7300-8100 kHz and most (101) of these licenses are authorized to operate throughout the entire band (*i.e.*, 800 kilohertz). Therefore, by the conclusion of the WARC-92 HFBC transition (April 1, 2007), 101 licensees must determine whether they can continue to operate in the band 7300-7350 kHz without causing harmful interference to the broadcasting service (and whether their operations can accept the interference that may occur from high-powered HFBC stations). At the end of the WRC-92 HFBC transition (March 29, 2009), these same IG licensees plus one additional IG licensee must determine whether they can continue to operate in the band 7350-7400 kHz without causing harmful interference to the broadcasting service.

[78] *Omnibus NPRM*, 19 FCC Rcd 6602 at paras. 26-28.

[79] See note 65, *supra*, and accompanying text.

[80] 47 C.F.R. § 2.106. The U.S. Table is described in 47 C.F.R. § 2.105. See note 59, *infra*, which describes seasonal planning.

29. As part of our proposal to allocate the band 7350-7400 kHz exclusively to the broadcasting service on March 29, 2009, we proposed to cease issuing licenses on that date for new non-Federal stations in the fixed and mobile services that would operate in this 50 kilohertz of spectrum.[81] We anticipated that these requirements could be met in other HF bands allocated to the fixed and mobile services. We expressed concerns regarding the addition of the band 7100-7200 kHz to the list of frequency bands authorized for use in Region 1 and Region 3 in the Commission's Rules for the Amateur Radio Service because the great power disparity between amateur stations and international broadcast stations lead us to conclude that the amateur service could not make use of this spectrum in advance of HFBC stations vacating the band.[82]

30. *Comments.* ARRL, the National Association for Amateur Radio requests that the Commission reconsider its assumptions about the practicalities of amateur stations operating in the band 7100-7200 kHz prior to March 29, 2009 (the date by which international broadcast stations are required to vacate this spectrum).[83] ARRL states that for years, several administrations in Region 3 (including Australia, New Zealand, and Western Samoa) have allowed their amateurs to use the band 7100-7200 kHz on the condition that harmful interference is not caused to the broadcasting service, and that since WRC-03, several administrations in Region 1 (Croatia, San Marino, Norway, and Iceland) have taken similar actions.[84]

31. ARRL avers that the inability of amateurs in Region 2 to communicate using telephony other than on a split frequency basis[85] with amateur stations in Regions 1 and 3 is a major handicap and that this makes the band far less useful than it could be for disaster relief and emergency communications.[86] ARRL argues that the 100 kilohertz (7-7.1 MHz) now available to amateurs in Regions 1 and 3 is wholly inadequate for their use on a daily basis, that this region of the spectrum has critically important and unique long distance propagation characteristics during nighttime hours, and that the 40-meter band has proven necessary for communications during weather emergencies between the United States mainland and between the U.S. Pacific insular areas (such as American Samoa and Guam) as well as between these insular areas and nearby countries.

32. ARRL requests that the Commission amend Part 97 in this proceeding to permit access by the amateur service in Regions 1 and 3 to the entire 7000-7200 kHz band, with 7100-7200 kHz on a secondary basis until March 29, 2009, and on a primary basis thereafter.[87] ARRL disagrees with the Commission's tentative conclusion that amateur service cannot make use of the band 7100-7200 kHz in Regions 1 and 3 in advance of the HFBC stations vacating the band because of the great power disparity. ARRL states that this statement is provably untrue now, since there are amateurs operating in Regions 1 and 3 in that segment with some success, and without causing harmful interference to HFBC.

[81] *Omnibus NPRM*, 19 FCC Rcd at 6603, para. 29.

[82] *Id* at paras. 30-31. Section 97.301 of our Rules authorizes licensees to operate an amateur station outside any area where the amateur service is regulated by an authority other than the Commission.

[83] *See* ARRL Comments at 5.

[84] *Id* at 2.

[85] Split frequency operations are discussed in para. 18, *supra.*

[86] *See* ARRL Comments at 4-5. ARRL notes that the 7 MHz band is the only worldwide amateur allocation between 3.8 MHz and 10.1 MHz.

[87] *Id.*

33. James F. Brown (Brown) states that the proposed "re-allocations in the amateur 40 meter band are quite reasonable, and will be supported by the amateur community for the most part."[88] Brown urges, however, that the amateur phone frequencies in the United States be the same frequency band as the phone band for Region 1 and Region 3.[89]

34. The National Association of Shortwave Broadcasters (NASB) supports the allocation of 7350-7400 kHz to the broadcasting service. NASB concurs with our proposal to add footnote 5.134 to the U.S. Table because WRC-03 modified this international footnote to permit the continued use of DSB transmissions as well as SSB transmissions in the WARC-92 HFBC bands as HF broadcasters transition to digital technology.[90] Nickolaus E. Leggett (Leggett) supports allowing U.S. international broadcasters the option of continuing to broadcast using DSB transmission.[91]

35. In its reply comments, ARRL reiterates its strong support for secondary access to the band 7100-7200 kHz in Regions 1 and 3 prior to 2009, states that there is no opposition to early access to this band in Regions 1 and 3, and urges that secondary access be provided for in any Order adopted in this proceeding.[92] The American Samoa Amateur Radio Association and Larry G. Gandy (collectively, ASARA/Gandy) support the comments of ARRL in this proceeding. ASARA/Gandy argue that, during a recent Typhoon which struck American Samoa, communications would have been significantly improved had amateur operators been allowed access to frequencies in the segment 7100-7200 kHz.[93] ASARA/Gandy assert that no harm would be caused to the broadcasting service by this early allocation to the amateur service.

36. BBG supports the HFBC allocation proposals that we made in the *Omnibus NPRM* and it recommends that we consider taking three additional actions in furtherance of the reallocation of the WARC-92 HFBC bands.[94] First, BBG notes that on April 1, 2007, the transition period for the WARC-92 bands will conclude. At that time, BBG anticipates that many out-of-band HFBC operations will seek to relocate to the WARC-92 HFBC bands. BBG encourages the Commission to recommend to its fixed and mobile service licensees in the WARC-92 bands that they carefully evaluate whether their operation can coexist with these high-power stations without causing harmful interference to the reception of international broadcast programming.[95] Second, BBG observes that several of the WARC-92 HFBC bands are not currently licensed for use by the non-Federal fixed and mobile services.[96] BBG recommends that the Commission delete these unused allocations.[97] Third, BBG observes that in 2007,

[88] *See* Brown Comments at 1. These comments are listed in the ULS as being filed on behalf of "james f Rbown." The staff's research leads us to believe that the actual commenter is a Mr. James F. Brown because an amateur license search finds that "Rbown" is not a licensee in the Amateur Radio Service. By contrast, a license search for "Brown, James F" finds five matches.

[89] See note 57, *supra.*

[90] *See* NASB Comments at 1. Specifically, NASB state that they concur with the Commission's proposal as stated in par. 17 of the *Omnibus NPRM*, which we have reproduced in the above text.

[91] *See* Leggett Comments at 2.

[92] *See* ARRL Reply Comments at 2.

[93] *See* ASARA Reply Comments at 1 and Gandy Reply Comments at 1. Mr. Gandy states that he is the President of ASARA.

[94] *See* BBG Letter at 1.

[95] *Id* at 2.

[96] *See* Table 2, *supra*, for the number of licenses that the Commission has issued for fixed and mobile operations in each of the WARC-92 HFBC bands.

[97] *See* BBG Letter at 2.

Schedule B commences on March 25 (not April 1) and thus, BBG recommends that the Commission advance the effective date of the WARC-92 HFBC bands in the United States by one week.[98] BBG states that this action would permit more effective seasonal planning. Finally, we note that no licensee in the fixed or mobile service addressed the impact of the proposed 7 MHz realignment on their operations.

3. Decision

37. We are implementing the proposed realignment of the allocations near 7 MHz with certain minor adjustments. In the paragraphs below, we are making allocation decisions that affect HF broadcasting, the 40 meter band, and the fixed and mobile services.

38. *HF Broadcasting.* We are adopting international footnote 5.134 domestically.[99] This footnote requires the use of seasonal planning in the WARC-92 HFBC bands as of April 1, 2007, and thus finalizes the reallocation of the WARC-92 HFBC bands, which will be allocated exclusively to the broadcasting service on a worldwide basis as of April 1, 2007 (March 25, 2007 in the United States). Seasonal planning and the exclusive allocation of these bands to the broadcasting service will allow international broadcasters to make more extensive use of this spectrum.

39. Consistent with the *WRC-03 Final Acts*, we are allocating the bands 7350-7400 kHz and 7400-7450 kHz to the broadcasting service on a co-primary basis with the fixed service until March 29, 2009. In accordance with the ITU *Radio Regulations*, the use of the band 7400-7450 kHz is limited to international broadcast stations that are located in the U.S. Pacific insular areas in Region 3 and that transmit to either Region 1 or Region 3. After March 29, 2009, the band 7350-7450 kHz (7400-7450 kHz only in Region 1 and Region 3) is allocated exclusively to the broadcasting service. At the conclusion of the WRC-03 transition period (March 29, 2009), this action replaces 100 kilohertz of exclusive Regional HFBC spectrum (7100-7200 kHz), which is being reallocated to the amateur service, with 50 kilohertz of exclusive global HFBC spectrum (7350-7400 kHz) and 50 kilohertz of exclusive Regional HFBC spectrum (7400-7450 kHz).

40. We are reorganizing Section 73.702(f) of the Commission's Rules in order to clarify and correct existing rules and to add the band 7350-7450 kHz to these rules.[100] First, we are subdividing Section 73.702(f) into three paragraphs by establishing new paragraph (g) for the rules that will apply to co-primary HFBC allocations and new paragraph (h) for requirements that will apply to Regional HFBC operation. Section 73.702(f) will apply only to the frequency bands allocated exclusively to the HFBC service. Second, in order to recognize out-of-band operations, we have added the phrase "Where practical," to paragraph (f). Third, we are subdividing the exclusive HFBC allocations into worldwide allocations (which will be listed in Section 73.702(f)(1)) and the Regional allocation (which will be listed in Section 73.702(f)(2)).[101] Fourth, we added an informational note that points to the definitions of the ITU Regions. Fifth, in new paragraph (g), we state that frequencies may be assigned from within the listed frequency bands that are allocated on a co-primary basis and thereafter this rule describes how the frequency bands are allocated. Sixth, the co-primary HFBC allocations are further grouped into worldwide allocations (which will be listed in paragraph (g)(1)) and Regional allocations (which will be

[98] *Id.*

[99] Specifically, we are adding international footnote 5.134 to the U.S. Table in each of the WARC-92 bands. The international requirements for seasonal planning in the HFBC bands are described in Article 12 of the ITU *Radio Regulations*. See note 59, *supra*, which describes seasonal planning.

[100] 47 C.F.R. § 73.702(f), which is titled "Assignment and use of frequencies." Consequently, we are adding cross references to Radio Broadcast Services (HF) (Part 73) in the bands 7350-7400 kHz and 7400-7450 kHz.

[101] In the *Omnibus NPRM*, the exclusive worldwide HFBC allocations were listed in § 73.702(f)(1) and the exclusive Regional HFBC allocations were listed in § 73.702(f)(2)(i).

listed in paragraph (g)(2)).[102] Seventh, in order to recognize the co-primary status of the amateur service during the transition period and to provide guidance to HF broadcasters after March 27, 2005, new Section 73.702(g)(2)(i) will read as follows:[103]

> Until March 29, 2009, the band 7100-7200 kHz is allocated to the amateur and broadcasting services on a co-primary basis in Region 1 and Region 3; however, during this transition period, the use of the band 7100-7200 kHz by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3. After March 27, 2005, where practical, requests for frequency assignments in the band 7100-7200 kHz shall be satisfied within the band 7200-7350 kHz. After March 29, 2009, the band 7100-7200 kHz is no longer allocated to the broadcasting service.

Eighth, we take note of continued co-primary fixed service use of the band 7350-7450 kHz in the 19 countries that are listed in international footnote 5.143C (most are in North Africa and the Middle East).[104] Ninth, we have consolidated the requirements for Regional operation in paragraph (h).[105] See Appendix A for the text of paragraphs (f), (g), and (h) of Section 73.702.

41. *The 40-Meter Band.* Absent any Commission action to the contrary, the Commission generally governs the operation of stations located in the U.S. Pacific insular areas in Region 3 consistent with the Region 3 Table.[106] Therefore, in accordance with the Region 3 Table, we are reallocating the band 7100-7200 kHz to the amateur service on a primary basis in the U.S. Pacific insular areas located in Region 3.[107] In accordance with international footnote 5.141C, the band 7100-7200 kHz remains allocated, until March 29, 2009, to the broadcasting service on a primary basis in the U.S. Pacific insular areas in Region 3. At the end of the WRC-03 transition period (*i.e.*, after March 29, 2009), the band 7100-7200 kHz is allocated exclusively to the amateur service in the U.S. Pacific insular areas in Region 3.

42. Based on comments of the ARRL, ASARA, and two licensees in the Amateur Radio Service, we are authorizing FCC-licensed amateur operators that are located within either Region 1 or Region 3 and that are outside an area where the amateur service is regulated by an authority other than the Commission to make immediate use of the band 7.1-7.2 MHz.[108] This action effectively increases the number of channels available worldwide to amateur stations and allows amateur stations to make more effective use of their frequency bands.[109] In order to implement this decision, we are amending Section

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[102] In the *Omnibus NPRM*, the co-primary worldwide HFBC allocations were listed in § 73.702(f)(3) and § 73.702(f)(4); and the co-primary Regional HFBC allocations were listed in § 73.702(f)(2)(i) and § 73.702(f)(ii).

[103] In the *Omnibus NPRM*, § 73.702(f)(2)(i) stated that, until March 29, 2009, the band 7100-7300 kHz is allocated on an exclusive basis to the broadcasting service in Region 1 and Region 3. This is incorrect. At WRC-03, the band 7100-7200 kHz was allocated to amateur service on a co-primary basis with the broadcasting service, effective January 1, 2005. After March 29, 2009, the band 7100-7200 kHz is allocated to the amateur service on an exclusive basis in much of the world.

[104] See Appendix A, § 73.702, paragraphs (g)(1)(ii) and (g)(2)(ii). Because the band 7350-7400 kHz is allocated to the HFBC and fixed services on a co-primary basis in the 19 countries listed in footnote 5.143C, HF broadcasters are required to protect fixed stations to which frequencies in the band 7350-7400 kHz have been already been assigned from harmful interference.

[105] In the *Omnibus NPRM*, the requirements for Regional operation were listed in § 73.702(f)(2)(i), (ii), and (iii).

[106] 47 C.F.R. § 2.105(a), note 4.

[107] For the list of U.S. Pacific insular areas in Region 3, see note 54, *supra.*

[108] Thus, in addition to the U.S. Pacific insular areas in Region 3, amateur operators licensed by the FCC are being authorized to operate onboard vessels and in aircraft that are within Region 1 or Region 3, but that are not within the territorial waters or airspace of another country. See note 12, *supra.*

[109] FCC-licensed amateur stations located in Region 2 presently exchange voice messages with amateur stations located in Region 1 and Region 3 by using two channels - one below 7100 kHz and one above 7150 kHz. By

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97.301 of the Commission's Rules to add 7.1-7.2 MHz as an authorized frequency segment in Region 1 and Region 3.[110] Specifically, we are authorizing a station having a control operator who has been granted an operator license of Amateur Extra Class or Advanced Class to use all frequencies within the segment 7.0-7.2 MHz when operating in Region 1 or Region 3.[111] Consistent with their operating authority in Region 2, we are also authorizing a station having a control operator who has been granted an operator license of General Class, Novice Class, or Technician Class to use an additional 50 kilohertz when operating in Region 1 or Region 3 as follows. General Class licensees may operate within the segment 7.025-7.150 MHz[112] and Novice Class and Technician Class licensees may operate within the segments 7.050-7.075 MHz and 7.100-7.150 MHz.[113]

43. Currently, phone emissions may be transmitted in the segment 7.075-7.100 MHz by amateur stations located in Regions 1 and 3, and by amateur stations located within Region 2 that are west of 130° west longitude or south of 20° north latitude.[114] In this Report and Order, we are additionally authorizing those amateur stations that the Commission regulates in Region 1 and Region 3 with the same emission privileges for the band 7.100-7.200 MHz that we currently authorize for stations in Region 2.[115] We note that Brown requests that the frequency band for authorized phone emissions in the United States be expanded. We have previously proposed in a separate proceeding to expand the 40-meter phone band from 7.150-7.300 MHz to 7.125-7.300 MHz.[116] For this reason, we find that Brown's request is outside the scope of the instant proceeding.

44. With regards to FCC-licensed amateur stations communicating with amateurs in countries located in Region 1, we note that several member countries of the European Conference of Postal and Telecommunications Administrations (CEPT) have taken the intermediate step of either allocating the

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allowing stations that we regulate in Region 1 and Region 3 immediate access to 7100-7200 kHz, communications between stations in Region 2 and U.S. Pacific insular areas in Region 3 can occur using only one channel.

[110] See Appendix A wherein Section 97.301 is revised.

[111] In Section 97.301, we are revising the entry for the 40-meter band in paragraphs (b) and (c) from 7.0-7.1 MHz and 7.025-7.100 MHz to 7.0-7.2 MHz and 7.025-7.200 MHz, respectively. We note that Amateur Extra Class and Advance Class licensees have access to the entire 40-meter band (7.1-7.3 MHz) when operating in Region 2. Thus, even after this action, Amateur Extra Class and Advance Class licensees that are operating in Region 1 or Region 3 will have access to less spectrum than they do when operating in Region 2. In addition, a control operator who holds a CEPT radio-amateur license Class 1 license or Class 1 IARP may use the segment 7.0-7.2 MHz when that operator is located in a U.S. Pacific insular area. 47 C.F.R. § 97.3(a)(12).

[112] In Section 97.301, we are revising the entry for the 40-meter band in paragraph (d) from 7.025-7.100 MHz to 7.025-7.150 MHz. We note that General Class licensees have access to the segments 7.025-7.150 MHz and 7.225-7.300 MHz in Region 2. Thus, our action makes all of the new spectrum that is in common with Region 2 (50 kilohertz) available to General Class licensees when they are operating in Region 1 or Region 3.

[113] In Section 97.301, we are revising the entry for the 40-meter band in paragraph (e) from 7.050-7.075 MHz to 7.050-7.075 MHz and 7.10-7.15 MHz. We note that Novice Class and Technician Class licensees have access only to the segment 7.10-7.15 MHz in Region 2. Thus, our action makes all spectrum that is in common with Region 2 (50 kilohertz) available to Novice Class and Technician Class licensees when they are operating in Region 1 or Region 3.

[114] 47 C.F.R. § 97.307(f)(11).

[115] That is, because we are adding the band 7.100-7.200 MHz to the Region 1 and Region 3 Tables in the appropriate paragraphs within Section 97.301, specific emission types for these frequencies are authorized by Section 97.305. Specifically, we are authorizing RTTY and data in the segment 7.100-7.150 MHz and phone and image emissions in the segment 7.150-7.200 MHz. *See* 47 C.F.R. § 97.305(c).

[116] Amendment of Part 97 of the Commission's Rules Governing the Amateur Radio Services, WT Docket No. 04-140, *Notice of Proposed Rulemaking*, 19 FCC Rcd 7293 at 7298, para. 8 (2004).

band 7100-7200 kHz to the amateur service on a secondary basis or making this spectrum available to the amateur service on a non-interference basis.[117] For example, in addition to non-interference operations in the CEPT member countries listed by ARRL in its comments (Croatia, San Marino, Norway, and Iceland), the band 7100-7200 kHz has recently been allocated to the amateur service on a secondary basis in the United Kingdom.[118]

45. We observe that the amateur and broadcasting services will share the band 7.1-7.2 MHz on a co-primary basis for about four years. In this regard, we want to make clear that the seasonal schedule for international broadcasting constitutes "first in" and thus, amateur operators are expected to keep themselves apprised of the changing seasonal schedules and to avoid transmissions that are likely to interfere with the reception of international broadcast program.[119] In addition, we are concerned about blanketing interference and note that, in areas where homes are packed closely together, an amateur station could disrupt several listeners' reception of international broadcast programming. Therefore, at the request of the BBG, we will make explicit our expectation that amateur operators are to eliminate any interference problem that they cause while transmitting in the band 7.1-7.2 MHz.[120] We believe that this action is necessary because of the novel co-primary sharing situation that will go on for approximately four years. Accordingly, we are adopting a new United States footnote, which will read as follows:

> US395 Until March 29, 2009, the use of the band 7100-7200 kHz in Region 1 and Region 3 by the amateur service shall not impose constraints on the broadcasting service intended for use within Region 1 and Region 3.

46. *The WARC-92 HFBC Bands.* In the *Below 28 MHz Report and Order*, the Commission adopted footnote US366 and stated that it would cease to issue licenses for new non-Federal stations in the fixed and mobile services in the WARC-92 HFBC bands on April 1, 2007.[121] We observe that the implementation date for the WARC-92 HFBC bands (April 1, 2007)[122] lags behind the start of the "A07" schedule for international broadcasting (March 25, 2007)[123] by one week. Because a significant number of international broadcast stations are currently operating in frequency bands not allocated to the broadcasting service, we conclude that it is highly likely that international broadcasters will attempt to use

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[117] The 46 member nations of CEPT have adopted the Harmonized European Table of Frequency Allocations and Utilizations. While implementation of this Table has been arranged for 2008, it is expected that CEPT member countries will endeavor to implement, as soon as possible, as many parts of the Table as they are able. The European Common Allocation for the band 7100-7200 kHz shows that this spectrum is allocated to the amateur and broadcasting services on a co-primary basis until March 29, 2009, at which time this spectrum will be allocated exclusively to the amateur service. *See* European Table of Frequency Allocations and Utilizations Covering the Frequency Range 9 kHz to 275 GHz, Lisboa January 2002 - Dublin 2003 - Turkey 2004 - Copenhagen 2004, ERC Report 25 at http://www.ero.dk.

[118] *See* http://www.ofcom.org.uk/licensing_numbering/radiocomms/ukfat/?a=87101.

[119] The seasonal schedule for international broadcasting can be obtained from various sources. For example, the operational schedule can be downloaded free of charge at: http://www.hfcc.org. We note, however, that while the High Frequency Co-ordination Conference (HFCC) coordinates the transmission schedules of about 60 organizations from more than 30 countries, this represent only about 75 to 80 percent of the global HFBC output.

[120] We note that the Commission's Rules already state that no amateur operator shall willfully or maliciously interfere with or cause interference to any radio communication or signal. 47 C.F.R. § 97.101(d).

[121] *Below 28 MHz Report and Order*, 18 FCC Rcd at 3429, paras. 13-14. See note 47, *supra*, for the text of footnote US366.

[122] 47 C.F.R. § 2.106, footnotes 5.136, 5.143, 5.146, 5.151, and US366.

[123] ITU Radio Regulations Nos. 12.17, 12.18, and 12.19 divide the year into two seasonal periods:
Schedule A: Last Sunday in March to last Sunday in October.
Schedule B: Last Sunday in October to last Sunday in March.

the WARC-92 HFBC bands more intensely beginning on March 25, 2007 (not April 1, 2007). We observe that the *WARC-92 Final Acts* provided incumbent licensees in the fixed and mobile services a 15 year transition period (April 1, 1992 to April 1, 2007) during which these licensees could have relocated their operations to other frequency bands. Moreover, except in Alaska and the U.S. Pacific insular areas, the Commission does not seek international protection for assignments to stations in the fixed and land mobile services that operate in frequency bands below 25 MHz, and thus, the Commission will not accept responsibility for the protection of these circuits from harmful interference caused by foreign operations.[124] Because of its concern for potential harmful interference to these unprotected circuits, the Commission has long required that equipment in the fixed and land mobile services operating in the frequency bands below 25 MHz to be tunable. Thus, the 219 licenses authorized under Section 90.266 that currently operate in a WARC-92 HFBC band will be able to operate outside the reallocated spectrum with minimal effort.[125] We find that advancing the implementation date for the WARC-92 HFBC bands by one week is prudent, in the public interest, and of a *de minimus* nature.[126] Because the allocation change does not take effect until 2007, fixed and mobile licensees that are still operating in the WARC-92 HFBC bands now have advance notice of this situation. Accordingly, we are revising footnote US366 and our licensing policy to align the implementation date for the WARC-92 HFBC bands in the United States with the start of the A07 seasonal schedule.

47. BBG recommends that we delete unused fixed and mobile allocations from the non-Federal Table in the WARC-92 HFBC bands. Our licensing records show that there are no non-Federal licensees authorized to operate stations in the: (1) aeronautical mobile service in two of the WARC-92 HFBC bands (5900-5950 kHz and 7300-7350 kHz) and in the WRC-03 HFBC band (7350-7400 kHz);[127] and (2) fixed service in three of the WARC-92 HFBC bands (13570-13600 kHz, 17480-17550 kHz, and 18900-19020 kHz).[128] We believe that it is prudent to delete these unused allocations. Accordingly, we are deleting these unused allocations from the non-Federal Table and from footnote US366.

48. We are moving the transition plan for the band 7300-7350 kHz, which is currently shown in footnote US366, to a new United States footnote that is discussed in the paragraph 51, below. Finally, our review finds that footnote US366 inadvertently expands the mobile service allocations in the WARC-92 HFBC bands and we are therefore correcting this error.[129] Taking all these factors into account, we are revising footnote US366 to read as follows:

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[124] 47 C.F.R. § 2.102(h)(3).

[125] We have concluded that the effect of the reallocations will be minimal. For example, the equipment is required to be tunable, so the licensees can easily use other bands; in practice, licensees are licensed for the entire band (*e.g.*, 7300-8100 MHz) rather than for specific frequencies, so they do not need to modify their license in order to use frequencies in the remainder of their licensed band; and the licensees tend to be licensed on more than one frequency band for use under Section 90.266. See para. 25, *supra*.

[126] Moreover, given the one-week time period, it is likely that any interference would not be identified or remedied before remaining fixed and mobile licensees had become secondary in the band.

[127] The bands 5900-5950 kHz and 7300-7400 kHz are allocated to the mobile except aeronautical mobile (R) service and the mobile service, respectively. However, because the bands 5900-5950 kHz and 7300-7400 kHz are not listed in the frequency table for the aviation services (47 C.F.R. § 87.173(b)), these bands are not currently available for use by the non-Federal aeronautical mobile service. In addition, NTIA has informed us that the Federal aeronautical mobile service allocations in the bands 5900-5950 kHz, 7300-7400 kHz, 13570-13600 kHz, and 13800-13870 kHz are unused and that these allocations are to be deleted from the Federal Table. Accordingly, we are amending the Federal Table and adopting new United States footnote US396 that reflects NTIA's decision. See para. 51, *infra*.

[128] See Table 2, *supra*, for the number of licenses that the Commission has issued for fixed and mobile operations in each of the WARC-92 HFBC bands.

[129] Currently, there are mobile service allocations in only three of the ten WARC-92 HFBC bands. Specifically, the band 5900-5950 kHz is allocated to mobile except aeronautical mobile (R) service on a primary basis for Federal

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US366 On March 25, 2007, the bands 5900-5950 kHz, 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 13570-13600 kHz, 13800-13870 kHz, 15600-15800 kHz, 17480-17550 kHz, and 18900-19020 are allocated exclusively to the broadcasting service.

(a) As of March 25, 2007, authority to operate new Federal stations in the fixed service may be extended in all of the above listed frequency bands and authority to operate new Federal stations in the mobile except aeronautical mobile service may be extended in the bands 5900-5950 kHz, 13570-13600 kHz, and 13800-13870 kHz. As of March 25, 2007, all Federal stations shall: (1) be limited to communications only within the United States and its insular areas; (2) not cause harmful interference to the broadcasting service; (3) be limited to the minimum power needed to achieve communications; and (4) take account of the seasonal use of frequencies by the broadcasting service published in accordance with Article 12 of the ITU *Radio Regulations*.

(b) As of March 25, 2007, authority to operate new non-Federal stations in the fixed and mobile except aeronautical mobile services shall not be extended in any of the above listed frequency bands. As of March 25, 2007, non-Federal stations in the: (1) fixed service may continue to use the bands 5900-5950 kHz, 9400-9500 kHz, 11600-11650 kHz, 12050-12100 kHz, 13800-13870 kHz, and 15600-15800 kHz; and (2) mobile except aeronautical mobile service may continue to use the band 5900-5950 kHz. As of March 25, 2007, non-Federal stations shall: (1) be limited to communications only within the United States and its insular areas; (2) not cause harmful interference to the broadcasting service; (3) be limited to the minimum power needed to achieve communications; and (4) take account of the seasonal use of frequencies by the broadcasting service published in accordance with Article 12 of the ITU *Radio Regulations*.

49. As of our most recent review (March 5, 2005), the Commission has issued 249 licenses for the authority to operate stations in the fixed or mobile services in spectrum that has been reallocated internationally to the HFBC service.[130] We anticipate that a significant number of international broadcast stations, which currently are operating in bands not allocated to the broadcasting service (out-of-band operations), will relocate to the WARC-92 HFBC bands beginning March 25, 2007, and to the band 7350-7400 kHz beginning March 29, 2009. We recommend that licensees in the fixed and mobile except aeronautical mobile services carefully evaluate whether their operations can coexist with these high-powered stations without causing interference to the reception of international broadcast programming.[131] In this regard, we remind non-Federal licensees in the fixed and mobile except aeronautical mobile services that, as of March 25, 2007 for the WARC-92 HFBC bands and as of March 29, 2009 for the band 7350-7400 kHz, their operation is subject to immediate termination if the Commission determines that their operation is causing interference to the broadcasting service.

50. *WRC-03's Impact on the Fixed and Mobile Services.* Consistent with the WRC-03's transition plan for the band 7350-7400 kHz, we are moving the existing primary fixed and secondary mobile service allocations in the band 7350-7400 kHz, which are listed directly in the U.S. Table, to new United States footnote US396, below; and we are maintaining the current allocation status of the fixed and mobile services in this band until the end of the WRC-03 HFBC transition period (March 29, 2009).[132] Thereafter, stations in the fixed and mobile services will operate on an unprotected, non-interference basis to the HFBC service. Because the aeronautical mobile service portion of the mobile

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and non-Federal use and the bands 13570-13600 MHz and 13800-13870 kHz are allocated to the mobile except aeronautical mobile (R) service on a secondary basis for Federal use.

[130] This total excludes the 18 Alaska private-fixed stations that will be protected.

[131] We observe that some international broadcast stations transmit with a rated carrier power of 500 kW and that many (if not most) use 100 kW. We note that the minimum power that the Commission authorizes is 50 kW.

[132] Because the band 7350-7400 kHz is allocated to the mobile service in the United States (rather than the more limited land mobile service), we are adding a new footnote to the U.S. Table that maintains the broader mobile except aeronautical mobile service allocation until the end of the transition period (March 29, 2009), and that otherwise parallels international footnote 5.143D.